PAYMENT FOR ECOSYSTEM SERVICES

Lessons and Ideas for Forest Incentives in Washington State

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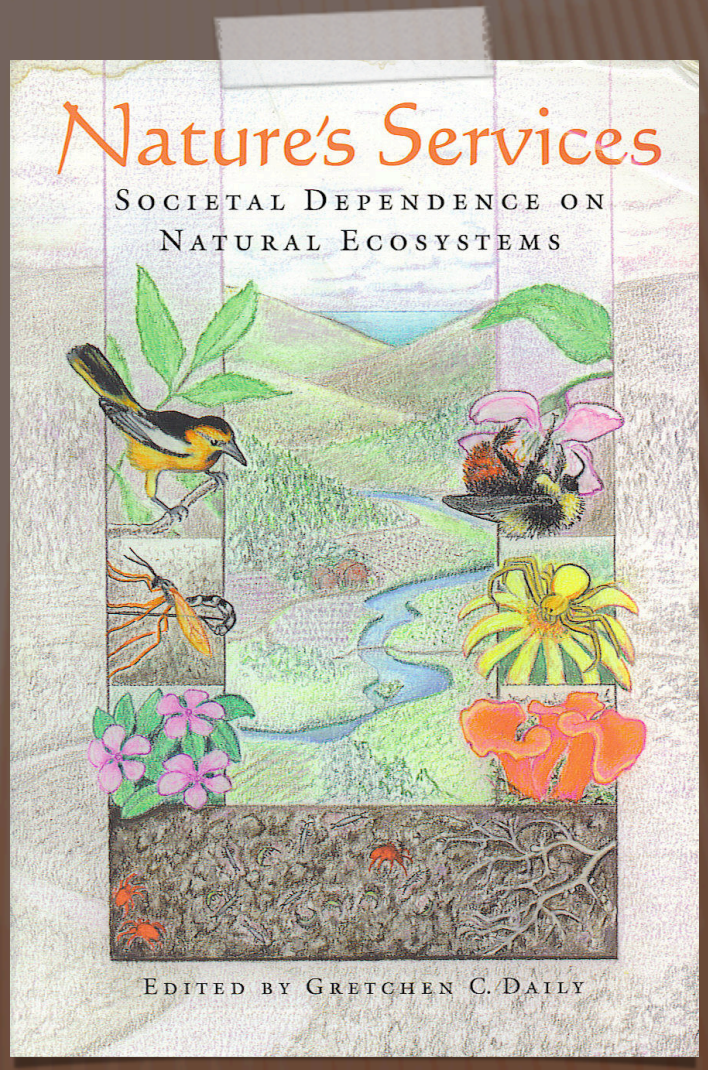
WHAT ARE ECOSYSTEM SERVICES?

- Things ecosystems do that benefit humans directly or indirectly, e.g.,
  - maintain water quality
  - sequester carbon
  - protect biodiversity
  - buffer the impacts of storms
  - maintain soil productivity



WHAT IS MEANT BY "PAYMENT FOR ECOSYSTEM SERVICES"

- A voluntary transaction where
- a well defined environmental service
- is bought by at least one buyer
- from at least one seller
- if and only if buyer secures service provision

WHY PES PROGRAMS?

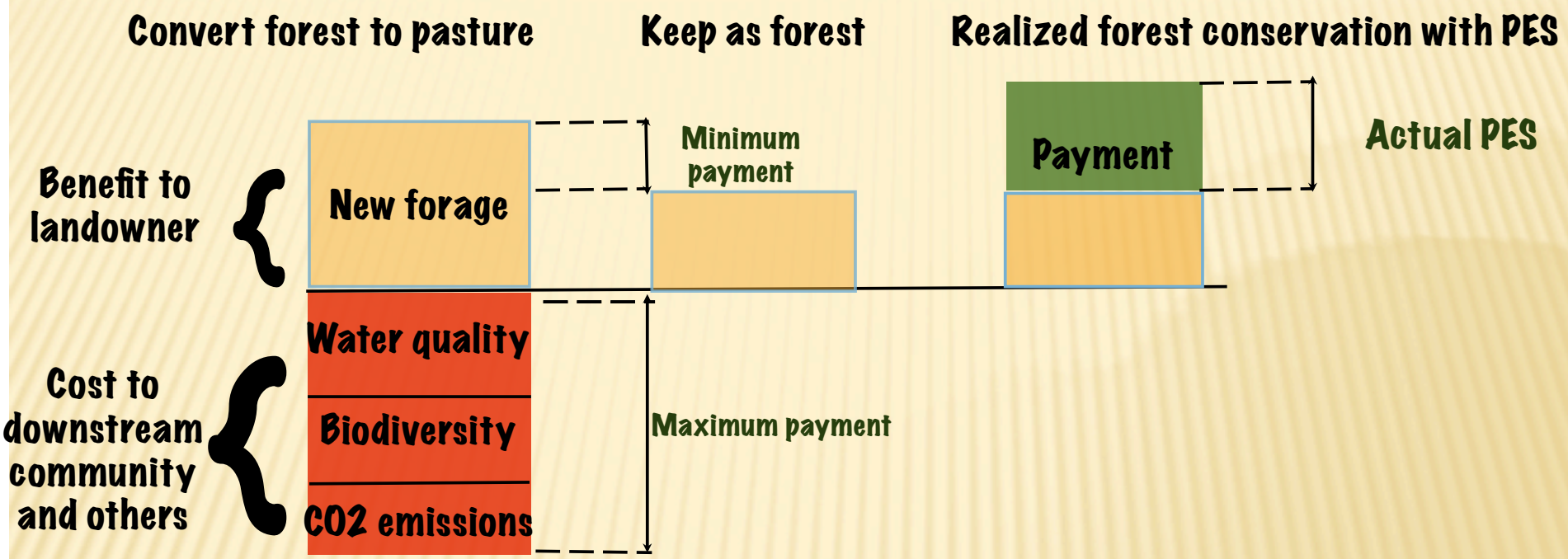
- Private markets tend to undersupply public goods
- Many ecosystem services have become scarce or degraded
  - Millennium Ecosystem Assessment 2005
  - Lack of cost internalization is economically inefficient

HOW PREVALENT?

- Over 300 formal PES programs world-wide
- Mexico, Costa Rica, Ecuador, Bolivia, Brazil, India, China, Indonesia, Zimbabwe, Tanzania, Australia, France, Great Britain, Germany, The United States
- Water quality, water quantity, soil maintenance, biodiversity, endangered species protection, carbon sequestration, landscape beauty

WHO PAYS ?

- Two main models:
  - direct users of services
  - government on behalf of direct and indirect users
    - funded from targeted fees or general tax revenue



Compensate opportunity cost "plus" for alternative management to keep or improve Ecosystem Services

CASE STUDIES: COSTA RICA

COSTA RICA

- Program established by national law in 1997
- Goal to reverse deforestation trend
- Benefits explicitly recognized as:
  - water quality, carbon sequestration and biodiversity conservation

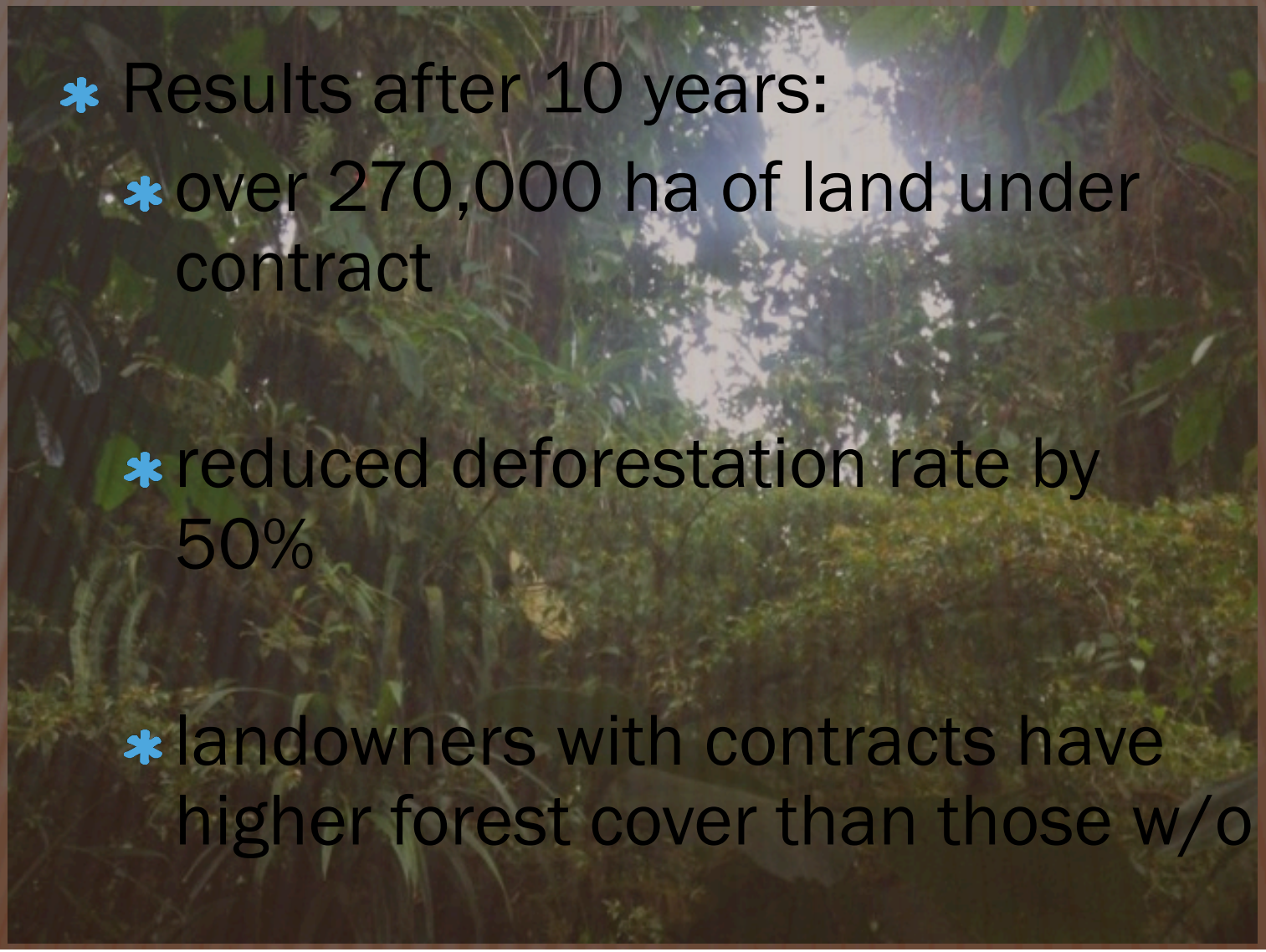
COSTA RICA

- Target: farmers, forest landowners, indigenous tribes
- Beneficiaries:
  - downstream water users
  - nation as a whole for biodiversity
  - global for carbon

COSTA RICA

- Who Pays:
  - Citizens through gas tax
  - Hydro-electric dam operators and municipalities (watershed specific)
  - Global Environment Facility (for biodiversity)

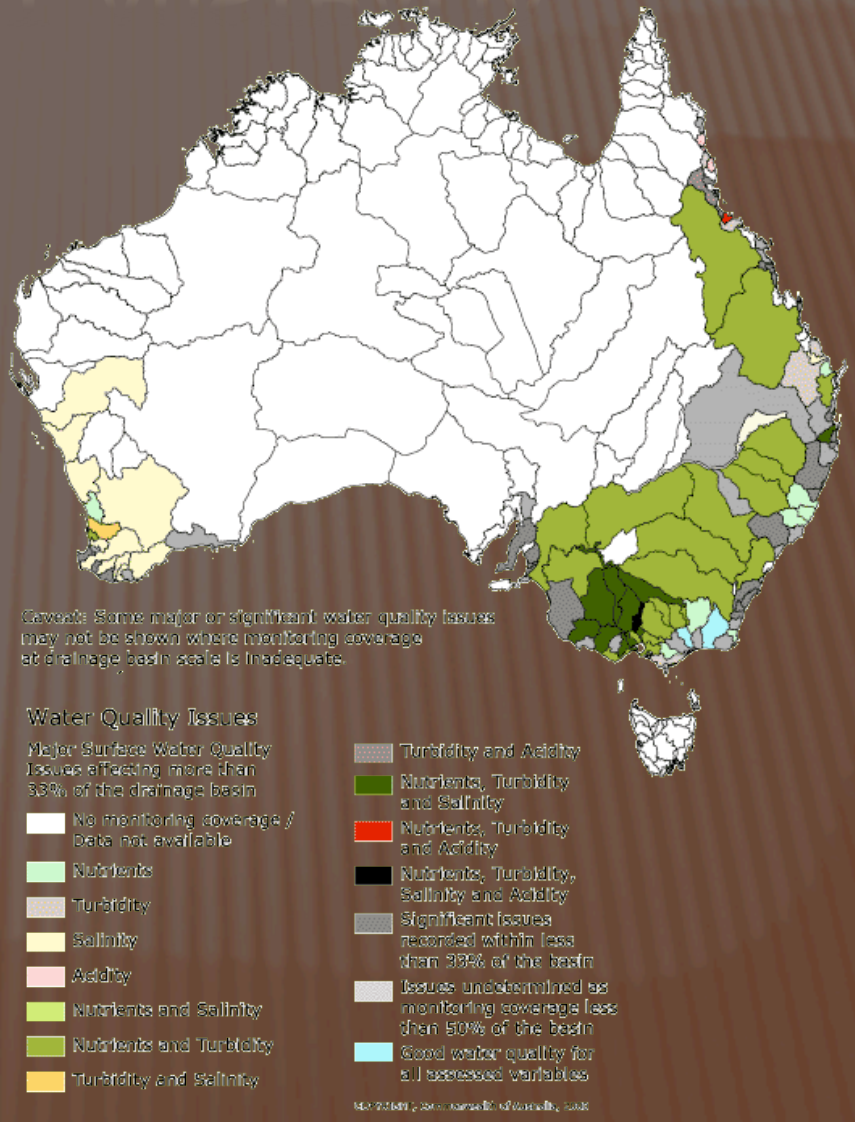
COSTA RICA



- Results after 10 years:
  - over 270,000 ha of land under contract
  - reduced deforestation rate by 50%
  - landowners with contracts have higher forest cover than those w/o

WIMMERA CATCHMENT, AUSTRALIA

- Goals:
  - reduce flow of high saline water into groundwater recharge areas;
  - improve soil quality
- Target: farmers and ranchers in upper watershed



AUSTRALIA

- Payment source:
  - general tax funds
- Payment mechanism:
  - reverse auction to achieve highest benefit at lowest cost
- Outcome: 10% of catchment covered in 3 years

FRANCE

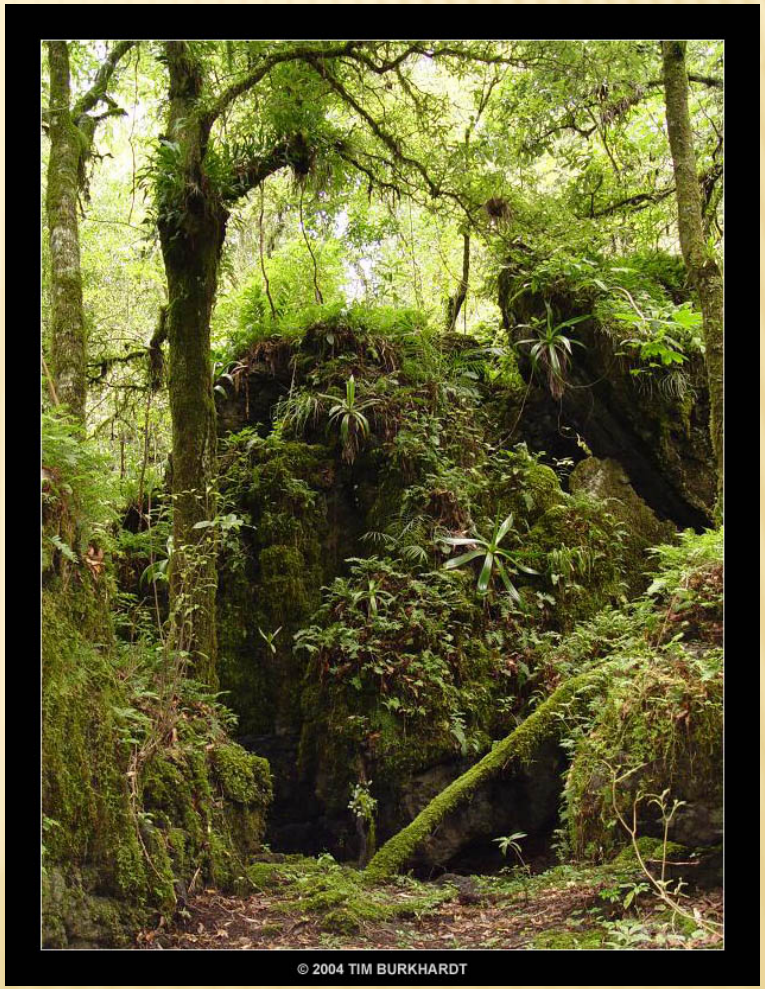
- Vittel Water company
- Pays farmers for particular practices to protect high quality source of bottled water
- Example of direct user/ private entity providing funding
- Program requirements complicated and rigorous but payments are high

MEXICO

- Payment for Hydrological Ecosystem Services
- Deforestation and water scarcity big issues
- National law authorized an increase and allocation of existing federal water fees to pay forest landowners to retain high quality forest in water stressed and flood-prone areas
- Had broad political support in Mexican Congress

MEXICO

- Studies were conducted to link forest types to hydrological services in order to target areas for program
- Payment amount based on a study of opportunity costs of alternative land uses



BRAZIL AND INDIA

- Developers pay impact fees for forest conversion (legal requirement)
- Municipalities and States purchase other private forest for protected areas (Brazil)
  - Focus on protection of biodiversity
- Federal government disburses funds for restoration of degraded lands (India)
  - raised $2.5 billion as of 2009 to use for climate mitigation and rural employment

DESIGN ELEMENTS THAT HAVE WORKED

- Payments slightly higher than opportunity cost
- Contractual agreement between buyers and sellers ensures enforceability for both parties
- Low transaction costs increase participation
- Robust contract compliance program results in on the ground improvement in service delivery

DESIGN ELEMENTS THAT HAVE WORKED

- Meaningful sanctions for lack of compliance
- Scientific monitoring to ensure desired services are actually produced by agreed upon land management practices
- Complements existing regulatory regime
  - Most programs based on regulatory additionality
- Secure ES provision for as long as possible

USEFUL IDEAS FOR US:

- Several models to explore
- New funding streams come from internalizing negative externalities
  - e.g., impact fees on conversion
- Streamlining program requirements increases participation
- Services can be stacked upfront
- Broad political support is key – based on recognition of values that sustainable forest management provides
- Upfront research and planning helps successful design